

RECEIVED  
CENTRAL FAX CENTER

AUG 09 2007

AMENDMENTS TO THE CLAIMS

The claims are amended as described in the Remarks. A complete listing of all currently pending claims follows.

1-51. *(Cancelled)*

52. *(Currently amended)* ~~The method of claim 22, wherein the~~ A method for increasing the rise time of air bubbles emitted from a diffuser in water for the purpose of suppressing noise in a marine seismic survey, said method comprising applying a chemical additive to the diffuser's surface with a brush, said chemical additive having bubble coalescence retardation properties or wetting agent properties or both.

53. *(New)* The method of claim 52, wherein the chemical additive is chosen from among the following: 2-ethyl-1-hexanol, octanol, Exxal-8, Exxal-9, Exxal-13, and sodium dodecyl sulfate.

54. *(New)* The method of claim 52, wherein the chemical additive is a poly(oxyalkylene) block copolymer composed of ethylene oxide (EO) and propylene oxide (PO) blocks having any of the following general structures:  $(EO)_x(PO)_y(EO)_x$  and  $(PO)_y(EO)_x(PO)_y$ , where  $x$  is in the approximate range 2-128 and  $y$  is in the approximate range 16-67.

55. *(New)* The method of claim 54, wherein the chemical additive is chosen from among the following: Pluronic L81, Pluronic L62, Pluronic L64, and Pluronic 25R2.

56. *(New)* The method of claim 52, wherein the additive is diluted in a suitable solvent.

57. *(New)* The method of claim 56, wherein the diffuser's surface is allowed to set after application of the chemical additive for at least five minutes before use.

58. (New) The method of claim 52, wherein the diffuser is a perforated hose made from polymeric or elastomeric material.

59. (New) The method of claim 52, further comprising the step of preconditioning the diffuser by soaking or bubbling it in fresh or salt water before coating it with the chemical additive.

60. (New) The method of claim 52, further comprising the steps of operating the diffuser in water followed by recoating the diffuser with the chemical additive.

61. (New) A method for increasing the rise time of air bubbles emitted from a diffuser in water for the purpose of suppressing noise in a marine seismic survey, said method comprising spraying a chemical additive on to the diffuser's surface, said chemical additive having bubble coalescence retardation properties or wetting agent properties or both.

62. (New) The method of claim 61, wherein the chemical additive is chosen from among the following: 2-ethyl-1-hexanol, octanol, Exxal-8, Exxal-9, Exxal-13, and sodium dodecyl sulfate.

63. (New) The method of claim 61, wherein the chemical additive is a poly(oxyalkylene) block copolymer composed of ethylene oxide (EO) and propylene oxide (PO) blocks having any of the following general structures:  $(EO)_x(PO)_y(EO)_x$  and  $(PO)_y(EO)_x(PO)_y$ , where  $x$  is in the approximate range 2-128 and  $y$  is in the approximate range 16-67.

64. (New) The method of claim 63, wherein the chemical additive is chosen from among the following: Pluronic L81, Pluronic L62, Pluronic L64, and Pluronic 25R2.

65. (New) The method of claim 61, wherein the additive is diluted in a suitable solvent.

66. (New) The method of claim 65, wherein the diffuser's surface is allowed to set after application of the chemical additive for at least five minutes before use.

67. (New) The method of claim 61, wherein the diffuser is a perforated hose made from polymeric or elastomeric material.

68. (New) The method of claim 61, further comprising the step of preconditioning the diffuser by soaking or bubbling it in fresh or salt water before coating it with the chemical additive.

69. (New) The method of claim 61, further comprising the steps of operating the diffuser in water followed by recoating the diffuser with the chemical additive.

70. (New) A method for increasing the rise time of air bubbles emitted from a diffuser in water for the purpose of suppressing noise in a marine seismic survey, said method comprising dunking the diffuser in a container the contents of which are a chemical additive having bubble coalescence retardation properties or wetting agent properties or both, said additive being either undiluted or dissolved in alcohol.

71. (New) The method of claim 70, wherein the chemical additive is chosen from among the following: 2-ethyl-1-hexanol, octanol, Exxal-8, Exxal-9, Exxal-13, and sodium dodecyl sulfate.

72. (New) The method of claim 70, wherein the chemical additive is a poly(oxyalkylene) block copolymer composed of ethylene oxide (EO) and propylene oxide (PO) blocks having any of the following general structures:  $(EO)_x(PO)_y(EO)_x$  and  $(PO)_y(EO)_x(PO)_y$ , where  $x$  is in the approximate range 2-128 and  $y$  is in the approximate range 16-67.

73. (New) The method of claim 72, wherein the chemical additive is chosen from among the following: Pluronic L81, Pluronic L62, Pluronic L64, and Pluronic 25R2.

74. (New) The method of claim 70, wherein the alcohol solvent is ethanol.

75. (New) The method of claim 70, wherein the diffuser's surface is allowed to set after application of the chemical additive for at least five minutes before use.

76. (New) The method of claim 70, wherein the diffuser is a perforated hose made from polymeric or elastomeric material.

77. (New) The method of claim 70, further comprising the step of preconditioning the diffuser by soaking or bubbling it in fresh or salt water before coating it with the chemical additive.

78. (New) The method of claim 70, further comprising the steps of operating the diffuser in water followed by recoating the diffuser with the chemical additive.

79. (New) A method for increasing the rise time of air bubbles emitted from a diffuser in water for the purpose of suppressing noise in a marine seismic survey, said method comprising dunking the diffuser in a container the contents of which are a substantially water-insoluble chemical additive having bubble coalescence retardation properties or wetting agent properties or both, said additive being either undiluted or diluted in a suitable solvent.

80. (New) The method of claim 79, wherein the chemical additive is chosen from among the following: 2-ethyl-1-hexanol, octanol, Exxal-8, Exxal-9, and Exxal-13.

81. (New) The method of claim 79, wherein the chemical additive is a poly(oxyalkylene) block copolymer composed of ethylene oxide (EO) and propylene oxide (PO) blocks having any of the following general structures:  $(EO)_x(PO)_y(EO)_x$  and  $(PO)_y(EO)_x(PO)_y$ , where  $x$  is in the approximate range 2-128 and  $y$  is in the approximate range 16-67.

82. (New) The method of claim 81, wherein the chemical additive is Pluronic L81.

83. (New) A method for increasing the rise time of air bubbles emitted from a diffuser in water for the purpose of suppressing noise in a marine seismic survey, said method comprising dunking the diffuser in a solution of a chemical additive having bubble coalescence retardation properties or wetting agent properties or both, said solution containing at least 25 wt % of said additive.

84. (New) The method of claim 83, wherein the chemical additive is chosen from among the following: 2-ethyl-1-hexanol, octanol, Exxal-8, Exxal-9, Exxal-13, and sodium dodecyl sulfate.

85. (New) The method of claim 83, wherein the chemical additive is a poly(oxyalkylene) block copolymer composed of ethylene oxide (EO) and propylene oxide (PO) blocks having any of the following general structures:  $(EO)_x(PO)_y(EO)_x$  and  $(PO)_y(EO)_x(PO)_y$ , where  $x$  is in the approximate range 2-128 and  $y$  is in the approximate range 16-67.

86. (New) The method of claim 85, wherein the chemical additive is chosen from among the following: Pluronic L81, Pluronic L62, Pluronic L64, and Pluronic 25R2.

RECEIVED  
CENTRAL FAX CENTER

AUG 09 2007


CONCLUSION

The applicants believe that claims 52-86 are all limited to the applicants' inventive method for generating a long-duration bubble curtain for suppressing multiple reflections in seismic surveys. Each of the claims is believed to be patentably distinct from all known prior art, including all art cited by the examiner. Therefore, the applicants respectfully request allowance of all pending claims. If the examiner agrees, the applicants propose reducing the number of claims by combining independent claims 52 and 61 ("said method comprising applying a chemical additive to the diffuser's surface with a brush or by spraying").

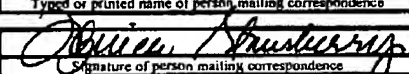
The Examiner is invited to contact the undersigned at the telephone number listed below. The Examiner is authorized to charge the fee for continued examination and any other required fees to Deposit Account No. 05-1328.

Respectfully submitted,

Date: 9 August 2007

  
J. Paul Plummer  
Attorney for Applicants  
Reg. No. 40,775

ExxonMobil Upstream Research Company  
P. O. Box 2189 (CORP-URC-SW 337)  
Houston, Texas 77252-2189  
Telephone: (713) 431-7360  
Facsimile: (713) 431-4664

Certification under 37 CFR §§ 1.8(a) and 1.10	
I hereby certify that, on the date shown below, this application/correspondence attached hereto is being:	
<b>MAILING</b>	
<input checked="" type="checkbox"/> deposited with the United States Postal Service in an envelope addressed to the Assistant Commissioner for Patents, Alexandria, VA 22313-1450. 37 C.F.R. § 1.8(a)	37 C.F.R. § 1.10
<input type="checkbox"/> with sufficient postage as first class mail.	<input type="checkbox"/> as "Express Mail Post Office to Addressee"
<div>Monica Stansberry <small>Typed or printed name of person mailing correspondence</small></div>	<div> <small>Express Mail mailing number</small></div>
<div> <small>Signature of person mailing correspondence</small></div>	<div>9 August 2007 <small>Date of Deposit</small></div>
<b>TRANSMISSION</b>	
<input checked="" type="checkbox"/> transmitted by facsimile to the Patent and Trademark Office at facsimile number: 8.1.571.273.8300	